

Utah Department of Transportation



2002 Standard Specifications FOR ROAD AND BRIDGE CONSTRUCTION

U.S. Standard Units (Inch-Pound Units)

Change Six

September 18, 2003

Memorandum

UTAH DEPARTMENT OF TRANSPORTATION

DATE: September 18, 2003

TO: Holders of Hard Copy of Standard Specifications

FROM: Barry Axelrod, CDT
Standards and Specifications

SUBJECT: Standard Specifications Distribution, Change 6, dated September 18, 2003

Applicable files for the change are attached. Please take the following action with respect to the attached pages.

REMOVE

Cover
N/A
Index Of Standard Specifications
Listing of Revised Standard Specifications
01455 (dtd July 3, 2002)
01571 (dtd July 3, 2002)
01574 (dtd August 29, 2002)
02316 (dtd February 27, 2003)
02896 (dtd February 27, 2003)
03211 (dtd July 3, 2002)
09972 (dtd July 3, 2002)
09991 (dtd July 3, 2002)
09992 (dtd July 3, 2002)

INSERT

Cover - Revised for Change 6
Memo - Insert after cover
Index Of Standard Specifications
Listing of Revised Standard Specifications
01455 (dtd August 28, 2003) (Revised)
01571 (dtd August 28, 2003) (Revised)
01574 (dtd August 28, 2003) (Revised)
02316 (dtd August 28, 2003) (Revised)
02896 (dtd August 28, 2003) (Revised)
03211 (dtd August 28, 2003) (Revised)
09972 (dtd August 28, 2003) (Revised)
09991 (dtd August 28, 2003) (Revised)
09992 (dtd August 28, 2003) (Revised)

If you are in need of electronic copies of any of the Standard Specifications please refer to the new Standards and Specifications Web site at <http://www2.udot.utah.gov/index.php?m=c&tid=302>. From there select the **2002 Standards** subtopic.

A copy of the Standard Specifications in Adobe pdf format can be found on the new Web site at <http://www2.udot.utah.gov/dl.php/200309041508342>. This file will remain static for the remainder of 2003. Changes to the Standards will be posted separately.

If you have any questions or problems with the electronic files contact me at 801-964-4570 or by email at **baxelrod@utah.gov**.

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07/03/02	16135	Electrical Junction Boxes
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Listing of Revised Standard Specifications

Change One

Revised August 29, 2002

- Section 00570 Articles 1.2 A 69, A 71 b (deleted)
- Section 00727 Articles 1.1 D; 1.5 B; 1.9; 1.10; 1.16 B, C; 1.18 B
- Section 01574 Articles 1.2 B
- Section 02721 Articles 1.2 D (added), H (replaced), I (deleted); 1.6 B1; 2.1 A Table 3; 3.2 C
- Section 02741 Articles 3.8 E 2 a, b
- Section 2821 Articles 3.1 A
- Section 02892 Articles 1.5 A, B
- Section 02936 Articles 1.4; 1.5 C
- Section 03152 Articles 1.2 P, Q; 2.2 A, B
- Section 05120 Articles 1.4 A (deleted), 3.3 A
- Section 16525 Articles 1.6 A, B

Change Two

Revised December 19, 2002

- Section 01561 Article 3.1 A
- Section 02075 Article 2.7 A
- Section 02372 Article 2.1 A 4
- Section 02455 Article 3.3 B 2
- Section 02785 Article 3.2 C
- Section 02861 Article 3.3 A
- Section 03055 Articles 1.2 P (inserted), 2.3 B, 2.4 (deleted), 2.7 A 1 a-e (added), 2.7 B 2 (added), 2.8 A 1 a, 2.8 A 2 (deleted), 2.9 A3, 3.2 A Table, 3.2 C, 3.7 A 3, 3.8 C 1, 3.9 A-B, 3.10, 3.11 B 1, 3.11 B 3
- Section 07922 Article 2.1 Table 1

Change Three

Revised February 27, 2003

Section 01355 Article 1.3 A 3

Section 01721 1.4 C deleted and moved to Measurement and Payment document

Section 02222 Changed title from Site Demolition-Pavement to Site Demolition - Concrete, A, 3.2 Title, 3.2 A

Section 02224 New Specification

Section 02316 1.2 A, D, I added, 1.3 added, 1.7 B, C, D, E, F, G added, 3.9 A added

Section 02455 3.3 B 2 (corrected error from change two)

Section 02721 1.2 Related Sections added, 1.3 H and I added, 1.7 B, 1.7 F deleted, 2.1 B added, 2.2 deleted, 3.1 Title changed, 3.2 B reference added, 3.2 E added

Section 02741 1.4 C6a added, 1.4 H, Table 3, 2.4 A, 2.4 C, Table 9, 2.5 B 1-3, 2.5 B 4 added, 2.5 D, 3.1 A1 deleted, 3.2 C3 added, 3.7 D1, 3.9 B4, 3.9 B5 added, 3.9 E note added

Section 02744 Entire Section deleted

Section 02745 1.4 A9

Section 02785 1.2 C and D added

Section 02892 Added Articles, 1.3 N, O, Y, 1.5 D, 2.4 I, 2.5 C, D, E, 2.6 B3 - B6, 2.6 C, 2.16, 2.17, 3.11 and Revised Articles 3.5 F and Table Number, 3.5 G and Table Number

Section 02896 2.1 A, B and 3.1 A drawing number corrected

Section 16525 1.2 H

Change Four

Revised April 24, 2003

Section 00555 1.18 added Table 1

Section 01280 1.2 K

Section 01282 1.13 B added, 1.13 G 2 deleted

Section 02222 1.2 B Title Changed

Section 02231 3.5 A

Section 02705 Title Changed, 1.1 A, 1.3 added, 3.1 Title changed, 3.1 A, 3.1 D moved, 3.2 added

Section 02741 3.7 B

Section 02747 Entire Section deleted

Section 02752 1.8 E 1

Section 02753 3.1 D 5 a, 3.3 D

Section 02842 2.4A

Section 02861 2.1 I

Section 02911 3.2 A 1

Section 02931 3.2 B

Section 03392 2.1 A 8-9

Section 03921 2.1 A 1, 2.1 C

Section 03922 2.1 B 1-2
Section 03923 2.1 A-B, 3.1 B
Section 03924 2.2 A-B
Section 03935 2.1 A, 2.1 A 2
Section 07105 2.3 A
Section 13553 1.2 C Title Changed
Section 13554 1.1 A, 1.3 C and D added, 2.1 A, 2.1 F, 2.2 D 1, 2.2 D 2 deleted, 2.2 E,
2.2 H, 2.2 H 2, 2.2 H 3 deleted and renumbered, 3.1 B 3 added, 3.1 I

Change Five

Revised June 26, 2003

Section 00727 1.5 B – Measurement and Payment added
Section 01452 Parts 1 and 3 replaced
Section 01721 3.3 A, 3.15 added
Section 02741 1.2 A
Section 02752 1.2 B, 1.9 added, 3.13 deleted
Section 02786 1.2 B, 1.4 D 1
Section 02962 Entire Section Replaced

Change Six

Revised August 28, 2003

Section 01455 1.6 H
Section 01571 1.1 B, 1.2 B and F added, 3.1 B revised, 3.1 D deleted and E renumbered
to D, 3.2 A 1 and 2 deleted, 3.2 B added, 3.3 added, 3.4 added, 3.5 added
Section 01574 1.5 A, 3.3 A
Section 02316 1.1 D added, 1.7 B, C, C.3, and D
Section 02896 3.1 A 5 added, 3.3 C 3 and 4
Section 03211 3.3 F 1
Section 09972 1.5, 2.1 A, 3.1 A, 3.2 A 1 b and d, 3.2 B 3 and 5, 3.4 E, G, H
Section 09991 1.1 A, 1.3 added, 1.4, 1.6 B 2 c added, 2.2 A, 3.1 I
Section 09992 1.4 A, 1.5, 1.7 B 2 c, 2.2 A

SECTION 01455

MATERIALS QUALITY REQUIREMENTS

PART 1 GENERAL

1.1 RELATED SECTIONS

- A. Section 00727: Control of Work
- B. Section 01355: Environmental Protection

1.2 SOURCE OF SUPPLY AND QUALITY REQUIREMENTS

- A. Use only materials that meet contract requirements.
- B. Notify the Engineer of the proposed source of materials to be used prior to their delivery.
- C. Materials can be conditionally approved at the supply source.
- D. If materials are conditionally approved but fail to meet contract requirements, correct to the satisfaction of the Engineer, or remove.
- E. Unless otherwise specified, use new materials for the work.

1.3 LOCAL OPTIONAL MATERIAL SOURCES - DEPARTMENT FURNISHED SOURCES

- A. Possible sources of local optional materials may be designated.
 - 1. Determine the amount of equipment and work required to produce a material meeting the Specifications using these sources.
 - 2. Expect variations in both quantity and quality.
 - 3. Procure material from designated portions of the deposit.
 - 4. Material may be rejected if it is unacceptable or fails to meet contract requirements.

- B. Specific information about optional material sites and sources is usually available for inspection at the Region Materials Lab. Sources and sites are those either identified in Contract Documents or within the vicinity of the project, including aggregate quality test or quality control test results from previous projects where the sources or materials sites may have been used or investigated.
 - 1. This information is made available to prospective bidders upon request for their inspection.
 - 2. By making this information available, the Department does not represent that a bidder should necessarily expect to produce materials corresponding with those previously produced by others, or that the Contractor may expect to produce based upon the Contractor's interpretation of test data.
- C. The Department may acquire the right to take and make materials available from designated sources, including the right to use the property as specified, or for plant site, stockpiles, and haul roads. The Contract defines acquisition and rights provided for this procedure.

1.4 LOCAL OPTIONAL MATERIAL SOURCES - CONTRACTOR FURNISHED SOURCES

- A. Acquire the rights to take materials from sources other than those designated in the Contract.
- B. Pay all related costs including those for increased haul length and for exploring and developing sources.
- C. Use material from other than Department-furnished sources only after Department tests indicate that the material is of equal or better value than the Department furnished source, and after its conditional acceptance is received.
 - 1. Notify the Engineer in writing of the choice of aggregate source.
 - 2. The Department obtains and processes the additional samples to determine the suitability of the aggregate.
 - 3. Allow 30 calendar days for sampling and testing after the Engineer has been notified and the number of test pits has been determined.
 - 4. The Engineer may require additional samples for inspection and testing before authorizing use of the source.
 - 5. Engineer determines the location and necessary number of test pits, with three test pits and samples per aggregate source as a minimum.
- D. Pay 50 percent of the Department's sampling and testing cost if the material source is found to be unacceptable for use as a particular contract bid item.
- E. Department does not extend time to the original contract time for the time required for Department testing of non-designated sources.

- F. Obtain environmental clearances following Section 01355, article, “Environmental Clearance by the Contractor.”

1.5 FINISHING LOCAL MATERIAL SOURCE SITES

- A. Finish all (public or private) material source sites to leave a pleasing appearance.
- B. Locate, where practicable, borrow pits, gravel pits, and quarry sites where they are not visible from the highway.
- C. Grade to drain without causing excessive erosion and without altering the natural drainage courses.
- D. Prepare pit site plans that show in detail the line and grades to which materials are to be removed.
 - 1. The Engineer evaluates the pit site plans as to their physical, environmental, and ecological effect before materials are removed from that source.
 - 2. If a property owner requests that the pit be finished other than stipulated, the change is permitted only with written approval from the Engineer and the property owner.
- E. Locate waste sites in areas that are least visible from public view. Spread waste material to obtain a natural appearance.
- F. Obtain environmental clearances following Section 01355, article, “Environmental Clearance by the Contractor.”
- G. Strip and stockpile topsoil. Spread topsoil that is not used for the highway over the excavated area.
- H. Remove trash. Remove, bury or distribute excess materials over the pit areas when pit excavation has been completed.
- I. Grade to approved lines and grades, before topsoil is spread.
 - 1. Avoid vertical cuts and sharp corners.
 - 2. Grade side slopes to be 3:1 or flatter.
 - 3. Abandon and obliterate haul roads.
- J. Seed the pit, the denuded areas around the pit resulting from construction operations, and the obliterated haul roads with a grass or grasses adaptable to the area and approved by the Engineer and property owner. Conduct the seeding under the contract requirements for grass seeding, including mulching.

- K. Department does not pay separately for pit finishing and seeding, including mulching, but considers them incidental to other bid items of work.

1.6 SAMPLES, TESTS AND REFERENCED CITED SPECIFICATIONS

- A. Incorporate into the work only material that the Department has inspected, tested, and accepted. Pay to remove unacceptable materials from the site.
- B. Department test methods are the most recent minimum sampling and testing requirements and standard test methods of the Department, AASHTO or ASTM tests in effect at the time the job is advertised.
- C. The Department performs testing at its expense, unless otherwise designated.
- D. Test method precedence is as follows:
 - 1. The Department's Minimum Sampling and Testing Requirements Manual.
 - 2. AASHTO.
 - 3. ASTM.
- E. A Department representative performs or observes sampling and sample splitting of materials.
- F. The Department can retest and reject materials conditionally accepted at the source.
 - 1. Materials designated for use can be inspected, tested, or rejected before or during incorporation into the work.
 - 2. Copies of any or all test results are available upon request.
- G. Pay for retesting of materials made necessary by the Contractor's activities.
- H. All Department and Consultant/Contractor materials laboratories, materials test technicians, and construction technician inspectors must be qualified under the requirements of the Manual of Instruction Part 8 – Materials Chapter 4, to perform material sampling and testing and construction inspection on State, Federal-Aid, local government and maintenance projects.

1.7 CERTIFICATE OF COMPLIANCE

- A. The Contract or the Department's current minimum sampling and testing requirements designates manufactured materials and assemblies that can be incorporated in the work, if accompanied by Certificates of Compliance from the manufacturer.

1. Each lot of certified materials or assemblies delivered to the work must be accompanied by a Certificate of Compliance clearly identifying the materials delivered and the specification requirement satisfied.
 2. The Certificates of Compliance must state that the materials or assemblies provided fully meet the requirements of the Contract, and must be signed by a representative of the manufacturer who is in a position to legally bind the manufacturer.
- B. Department may sample and test materials or assemblies used on the basis of Certificates of Compliance and reject or accept if it is determined not to meet contract requirements under Section 00727, article, "Conformity with Plans and Specifications."
- C. The form and distribution of the Certificates of Compliance are as found in the Contract or the Department's Minimum Sampling and Testing Requirements Manual.

1.8 PLANT INSPECTION

- A. Department may inspect materials at the acquisition or manufacturing source for compliance with specified manufacturing methods. Department obtains and tests material samples for compliance with quality requirements.
- B. Meet the following conditions if inspection is at the plant.
1. Cooperate fully and assist the Engineer during the inspection.
 2. Allow the Engineer full access to all parts of the plant used to manufacture or produce materials.
 3. If specified, provide a building, located at the plant, for use by the Engineer, as required under this Section, article, "Field Laboratory."
 4. Provide and maintain adequate safety measures.
 5. Equip crushing or screening facilities with automatic or semiautomatic mechanical sampling devices.
- C. The Department can retest materials conditionally approved at the source prior to incorporation into the work.
- D. The Department rejects material not meeting contract requirements.

1.9 FIELD LABORATORY

- A. Provide the Department a field laboratory consisting of a suitable building to house the equipment and perform the required tests.

- B. The Department specifies by a Special Provision the type of building and other requirements, including payment.

1.10 STORAGE AND HANDLING OF MATERIALS

- A. Store and handle materials to preserve their quality and fitness for the work.
- B. Transport bulk materials in a manner to prevent loss or segregation after loading and measuring.
- C. Store materials so they can be easily inspected and retested following this Section, article, "Samples, Tests and Referenced Cited Specifications."
- D. Obtain approval to store materials and Contractor's plant and equipment within the right-of-way.
- E. Additional storage space is at the Contractor's expense and option.
 - 1. Obtain owner's or lessee's written permission before storing material on private property.
 - 2. Furnish copies of the permission to the Engineer, if requested.
- F. Pay to restore storage and plant sites to their original condition.

1.11 UNACCEPTABLE MATERIALS

- A. Engineer rejects all materials not meeting the contract requirements.
- B. Remove unacceptable materials immediately from the project site unless the defects are corrected and approved by the Engineer or accepted at a reduced price under Section 00727, article, "Conformity with Plans and Specifications."

1.12 DEPARTMENT FURNISHED MATERIALS

- A. Deliver or make available Department-furnished materials at the locations specified in the Contract. Receive, inventory, store, protect, distribute and install Department-furnished material.
- B. Include the cost of handling and placing Department-furnished materials in the contract price for the item for which the materials are used.

- C. Contractor is responsible for all materials received. The Department deducts from any monies due:
 - 1. For any shortages, deficiencies, and damage that may occur to the material after delivery.
 - 2. The demurrage charges resulting from failure to accept the material at the designated time and point of delivery.

1.13 BUY AMERICA

- A. Federal-aid projects are subject to Title 23, U. S. Code of Federal Regulations, Section 635.410, Buy America Requirements.
 - 1. Check the appropriate box on the bid proposal indicating the intent to use steel or iron or both of 100 percent domestic supply, or with some foreign supply.
 - 2. If neither box is checked, the Department considers the bid a bid for furnishing domestic steel and iron, and uses only domestic steel and iron in the Contract.
 - 3. The Department awards the Contract to the bidder who submits the lowest total contract bid based on furnishing domestic steel and iron unless the total contract bid exceeds the lowest total contract bid based on foreign steel and iron by more than 25 percent.
- B. To be considered domestic, all steel and iron used and all products manufactured from steel and iron must be produced in the United States.
 - 1. All manufacturing processes, including application of a coating, for these materials must occur in the United States.
 - 2. Coating includes all processes that protect or enhance the value of the material to which the coating is applied. The material being applied as a coating is not covered under Buy America.
- C. If 100 percent steel and iron is furnished, provide a written certification that all contract items using steel and iron are of domestic supply.
- D. The above requirement does not preclude a minimal use of foreign material, provided the cost of material used does not exceed one-tenth of one percent (0.1 percent) of the total contract amount or \$2,500 whichever is greater.

1.14 CONVICT PRODUCED MATERIALS

- A. Federal-aid projects are subject to Title 23, U. S. Code of Federal Regulations, Section 635.417, Convict Produced Materials.

- B. Materials produced after July 1, 1991, by convict labor may only be incorporated in a Federal-aid highway construction project if such materials have been:
1. Produced by convicts who are on parole, supervised release, or probation from a prison, or
 2. Produced in a qualified prison facility and the cumulative annual production amount of such materials for use in Federal-aid highway construction does not exceed the amount of such materials produced in such facilities for use in Federal-aid highway construction during the 12-month period ending July 1, 1987.

PART 2 PRODUCTS Not used.

PART 3 EXECUTION Not used.

END OF SECTION

Change One – August 29, 2002
No changes made

Change Two – December 19, 2002
No changes made

Change Three – February 27, 2003
No changes made

Change Four – April 24, 2003
No changes made

Change Five – June 26, 2003
No changes made

Change Six – August 28, 2003
Article Revised
1.6 H

SECTION 01571

TEMPORARY ENVIRONMENTAL CONTROLS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Requirements for controlling surface environmental conditions at the construction site, and related areas under the Contractor's control.
- B. Coordinating temporary erosion control measures.

1.2 RELATED SECTIONS

- A. Section 01282: Payment
- B. Section 01574: Environmental Control Supervisor
- C. Section 02061: Select Aggregate
- C. Section 02373: Riprap
- D. Section 02610: Pipe Culverts
- E. Section 02613: Culvert End Sections
- F. Section 02922: Seed, Turf Seed, and Turf Sod

1.3 REFERENCES

- A. AASHTO M 288: Geotextile Specifications for Highway Applications.

1.4 TYPES

- A. Check Dam:
 - 1. Intercepts and ponds sediment-laden ditch flows.
 - 2. Ponding the water reduces the velocity of the incoming flow and allows most of the suspended sediment to settle out.
 - 3. Water exits the check dam by flowing over the top.

4. Types:
 - a. Straw or Hay Bale
 - b. Stone
- B. Silt Fence Slope Barrier:
 1. Intercepts and ponds sediment-laden sheet flow runoff from slopes.
 2. Ponding the water reduces the velocity of the incoming flow and allows most of the suspended sediment to settle out.
 3. Water exits by percolating through the silt fence.
- C. Slope Drain:
 1. Collects and transports storm runoff down the face of a slope.
 2. Consists of a berm at the top of the slope, a pipe culvert with end sections and outlet protection.
 3. Used until permanent facilities are installed or until vegetation growth is adequate.
- D. Drop-inlet Barrier:
 1. Intercepts and ponds sediment-laden runoff.
 2. Ponding the water reduces the velocity of the incoming flow and allows most of the suspended sediment to settle out.
 3. When pond height reaches the top of the barrier, water flows over the bales or stones and into the drop-inlet. If a silt-fence barrier is used, the ponded water percolates through the silt-fence fabric and into the drop-inlet.
 4. Types:
 - a. Straw or Hay Bale Drop-inlet Barrier
 - b. Stone Drop-inlet Barrier
 - c. Silt-Fence Drop-Inlet Barrier
- E. Sediment Trap:
 1. Intercepts and ponds sediment-laden concentrated flows.
 2. Ponding the water reduces the velocity of the incoming flow and allows most of the suspended sediment to settle out.
- F. Temporary Berm:
 1. Diverts storm runoff from a recently constructed slope to a controlled release point.
 2. Ridge of compacted soil, with or without shallow ditch.
- G. Curb Inlet Barrier:
 1. Intercepts Sediment-laden runoff.
 2. Minor ponding may occur.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Check dams:
 - 1. Straw or hay bale:
 - a. Twine bound hay or straw bales free from weeds declared noxious by the UDA.
 - b. Hardwood stakes: 2 inch square (nominal) by 4 feet.
 - c. Filter Fabric: AASHTO M 288.
 - 2. Stone: Well graded within 0.5 inch to 1.5 inch.

- B. Silt Fence:
 - 1. Hardwood Post: 2 inch square (nominal) by 4 feet in length.
 - 2. Free Draining Granular Backfill Borrow: Refer to Section 02061.
 - 3. Filter Fabric: Synthetic, pervious sheet of propylene, nylon, polyester, or ethylene yarn. AASHTO M 288.
 - a. Allows a flow rate of 0.067 gal/yd²/min.
 - b. Filter efficiency of 97 percent.
 - c. With ultraviolet ray inhibitors and stabilizers.
 - d. Provide a minimum of 6 months of expected usable construction life at a temperature range of 0 degrees F. to 120 degrees F.
 - 4. Fasteners: Staples, wire, zip ties, or nails.

- C. Slope Drain:
 - 1. Pipe Culverts: Refer to Section 02610.
 - 2. End Section: Refer to Section 02613.
 - 3. Riprap or Rock Lining: Refer to Section 02373. Fifty percent of the riprap to be between 6 inches and 12 inches with a maximum size of 12 inches and a minimum size of 4 inches.
 - 4. Hay or straw bales and hardwood stakes: Refer to this Section, Part 2, article, "Check Dams."

- D. Drop-Inlet Barriers:
 - 1. Straw or Hay Bale: Refer to this Section, Part 2, article, "Check Dams."
 - 2. Stone: Refer to this Section, Part 2, article, "Check Dams, Stone."
 - 3. Silt-fence: Refer to this Section, Part 2, article, "Silt Fence."

- E. Sediment Trap:
 - 1. Free draining granular backfill borrow: Refer to Section 02061.
 - 2. Riprap or Rock Lining: Refer to Section 02373, and this Section, this article, "Materials, Slope Drain."

- F. Temporary Berm: Existing Soil.
- G. Curb Inlet Barrier:
 - 1. Concrete Building Blocks.
 - 2. Stone: Refer to this Section, Part 2, article, "Check Dams, Stone."
 - 3. Wire Mesh: 0.5 inch by 0.5 inch.

PART 3 EXECUTION

3.1 PREPARATION

- A. Follow the Storm Water Pollution Prevention Plan (SWPPP) in the plan.
 - 1. Address in the SWPPP all disturbed areas on a project including staging areas, haul roads, borrow sites, stockpiles, and disposal areas.
 - 2. If SWPPP is not provided in the plans, create and submit a plan to the Engineer for approval.
 - 3. Obtain written approval from the Engineer to change the SWPPP.
- B. Designate an Environmental Control Supervisor (ECS) who will:
 - 1. Work directly with the Department SWPPP coordinator designated by the Engineer.
 - 2. Be available as needed to coordinate the SWPPP, inspect and maintain sediment control devices, and resolve other issues.
- C. Do not start earth-disturbing work until SWPPP is approved, and appropriate temporary erosion and sediment control measures are in place.
- D. Use the most restrictive requirement if a conflict occurs between erosion and sediment control specifications and federal, State, or local agency's laws, rules, or regulations.

3.2 INSTALLATION

- A. Provide or construct measures such as check dams, silt fence, slope drains, drop-in inlet barriers, sediment traps, and other erosion control devices or methods to prevent erosion and sedimentation during construction and/or shutdown periods.
- B. Follow installation procedures outlined in the Standard Drawings.

3.3 INSPECTIONS

- A. Inspect all denuded areas during construction to determine potential erosion problems. Pro-actively apply corrective measures in a timely manner as required.
- B. Inspect all sediment retention structures. Refer to Section 01574, article 3.4, SWPP inspections.

3.4 MAINTENANCE

- A. Maintain temporary sediment control devices to ensure they function properly until all disturbed areas draining to them are stabilized.
- B. Remove and properly dispose of sediment when it has accumulated half way up the height or it interferes with the performance of the structure.
- C. Dispose of sediment removed from erosion control structures in a manner acceptable to the Engineer.

3.5 REMOVAL

- A. After all seeding and mulching has been placed and just before final closeout of the project, remove any remaining sediment from behind and around erosion control features and remove all temporary erosion control features unless directed differently by the Engineer.
- B. Seed areas where the sediment was removed following Section 02922 Seed, Turf Seed, and Turf Sod.

END OF SECTION

Change One – August 29, 2002

No changes made

Change Two – December 19, 2002

No changes made

Change Three – February 27, 2003

No changes made

Change Four – April 24, 2003

No changes made

Change Five – June 26, 2003

No changes made

Change Six – August 28, 2003

Articles Revised

1.1 B

1.2 B and F added

3.1 B revised

3.1 D deleted and E renumbered to D

3.2 A 1 and 2 deleted

3.2 B added

3.3 added

3.4 added

3.5 added

SECTION 01574

ENVIRONMENTAL CONTROL SUPERVISOR

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Description of the responsibilities of the Contractor's Environmental Control Supervisor (ECS) to monitor and document environmental mitigation and compliance on the project.

1.2 RELATED SECTIONS

- A. Section 01355: Environmental Protection
- B. Section 01561: Temporary Environmental Fence
- C. Section 01571: Temporary Environmental Controls
- D. Section 02911: Mulch
- E. Section 02922: Seed, Turf Seed, and Turf Sod

1.3 SUBMITTALS

- A. Submit to the Engineer, certification that the Contractor's proposed ECS has attended and passed the examination for UDOT's Environmental Control Supervisor Training. Contact the UDOT Environmental Section for more information.
- B. Submit a NOI and a NOT to the Division of Water Quality at the Department of Environmental Quality (DEQ) as described under Article 3.3.
- C. Submit Storm Water Pollution Prevention Plan (SWPPP) inspection reports to the Engineer within 24 hours of the inspection as set forth under Article 3.4.

1.4 ECS QUALIFICATIONS

- A. Attend UDOT's Environmental Control Supervisor Training and pass the examination.
- B. Knowledge of erosion control principles and best management practices for roadway construction sites.
- C. Knowledge of the laws surrounding environmental clearances and how to obtain these clearances required under Section 01355, article 1.8 "Environmental Clearances by the Contractor."
- D. Be sufficiently knowledgeable to understand the significance and implementation of environmental plans, details, and specifications.

1.5 NON-PERFORMANCE PENALTY

- A. A \$500 non-performance penalty assessed against the Contractor for each calendar day, or portion thereof, during which the project is in non-compliance with permits and regulations. If the Contractor is still in non-compliance after three days, the penalty increases to \$1,000 per day and increases to \$1,500 per day after 7 days. This penalty does not include fines issued by regulatory agencies.
- B. No extension of contract time allowed for any project delay resulting directly or indirectly from a violation of project environmental requirements.

PART 2 PRODUCTS Not used

PART 3 EXECUTION

3.1 GENERAL RESPONSIBILITIES

- A. Successful implementation of all environmental protection commitments and the correct installation of environmental mitigation measures associated with the project.
- B. Keep the project in environmental compliance.
- C. ECS responsibilities take precedence over any other work commitments.

- D. Obtain environmental clearances as addressed in Section 01355, article 1.8 “Environmental Clearances by the Contractor” for disturbances, waste sites, staging areas, for example not provided in the Contract.
- E. Be available at all times (24-hours a day) during the active project construction to respond as necessary to environmental compliance and to the direction of the Engineer. Be available as needed during seasonal shutdowns.

3.2 REGULATORY AGENCY COORDINATION

- A. Work through the Engineer to maintain coordination and communications between the Contractor, Department, and Regulatory Agencies. Process all official communications through the Engineer.
- B. Coordinate and conduct on-site meetings on an as-needed basis with Regulatory Agency Inspectors. This could include Regulatory Inspectors from the Utah Division of Water Quality, Utah Division of Water Rights (Stream Alterations), U.S. Army Corps of Engineers (wetlands), and U.S. Fish and Wildlife Service.
- C. Notify the Engineer in writing of the results of any agency coordination meeting within 24-hours.

3.3 UTAH POLLUTION DISCHARGE ELIMINATION SYSTEM (UPDES) PERMIT COMPLIANCE

- A. Prepare and submit a Notice of Intent (NOI) for Storm Water Discharges with Construction Activity. NOI forms can be completed online at Division of Water Quality website at <http://secure.e-utah.org/swp/client>.
- B. Do not start earth-disturbing activities until the completed and signed NOI form has been submitted to the Division of Water Quality at the DEQ.
- C. Work directly with the Department SWPPP coordinator designated by the Engineer.
- D. Place temporary or permanent stabilization measures (for example, mulch, erosion control blankets) as soon as practicable but in no case longer than 14 days unless construction activities resume on that portion of the site within 21 days when activity ceased. If snow cover precludes the mulch placement, apply as soon as practicable. Seasonal shutdowns require that mulch be placed for all disturbed portions of the project.

- E. Do not start earth disturbing work until project perimeter temporary erosion measures and those protecting environmentally sensitive areas are in place and approved.
- F. Understand that the erosion control measures on the SWPPP are diagrammatic and must be adapted in the field to meet their intended purpose. As the project progresses through the various construction phases, implement the appropriate erosion control measures for that stage. Make necessary changes to the SWPPP to accommodate construction sequencing.
- G. Obtain approval from the Engineer to make changes to the SWPPP. Install additional erosion control measures as directed by the Engineer.
- H. Be available as needed to coordinate the SWPPP, make necessary changes, inspect, maintain sediment control devices, and resolve other sediment and erosion control issues.
- I. Monitor earthwork during construction to detect any evidence of the start of erosion. Pro-actively apply corrective measures.
- J. Apply the appropriate maintenance of temporary erosion controls. Refer to Section 01571.
- K. At the end of construction, submit a Notice of Termination (NOT) form to the Division of Water Quality to terminate the permit. NOT forms can be obtained at the DEQ or UDOT.

3.4 SWPPP INSPECTIONS

- A. At the commencement of earth moving activity, start performing inspections of all temporary erosion control measures a minimum of once every seven calendar days and within 24 hours after any storm event greater than 0.5 inch. Where construction sites have been temporarily or seasonally shut down, conduct inspections once a month.
- B. Invite UDOT's SWPPP coordinator appointed by the Engineer to the inspections.
- C. After each inspection, complete an inspection report and submit it to the Engineer within 24 hours. Include the following information:
 - 1. Name(s) of personnel attending the inspection.
 - 2. Date of inspection
 - 3. List of problems identified in the previous inspection and document if corrections have been made.

4. List by station, earth disturbing activities since previous inspection.
5. List by station, erosion and sediment control measures installed since previous inspection.
6. List by station, new and unresolved problems encountered with specific erosion control measures and describe solutions to be implemented.

END OF SECTION

Change One
Revised August 29, 2002
Articles Revised
1.2 B

Change Two – December 19, 2002
No changes made

Change Three – February 27, 2003
No changes made

Change Four – April 24, 2003
No changes made

Change Five – June 26, 2003
No changes made

Change Six – August 28, 2003
Articles Revised
1.5 A
3.3 A

SECTION 02316

ROADWAY EXCAVATION

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Excavate all material within designated areas, including channels with a bottom width of 12.0 feet or greater. Widen cuts as directed.
- B. Rock excavation and removal.
- C. Dispose of excavated material; place in embankment and/or other areas.
- D. Dispose of Asphalt Pavement per Section 02224.

1.2 RELATED SECTIONS

- A. Section 00725: Scope of Work
- B. Section 00820: Legal Relations and Responsibility to Public
- C. Section 01571: Temporary Environmental Controls
- D. Section 01721: Survey
- E. Section 02056: Common Fill
- F. Section 02061: Select Aggregate
- G. Section 02075: Geotextiles
- H. Section 02231: Site Clearing and Grubbing
- I. Section 02224: Dispose of Asphalt Pavement
- J. Section 02324: Compaction
- K. Section 02912: Topsoil

1.3 PAYMENT PROCEDURES

- A. Pay for disposal of asphalt pavement under Section 02224.

1.4 REFERENCES

- A. NEPA 495: Code for the Manufacture, Transportation, Storage, and Use of Explosive Materials.
- B. UOSH Construction Standards Chapter U: Blasting and the Use of Explosives.

1.5 DEFINITIONS

- A. Rock: Solid mineral material that cannot be removed with equipment reasonably expected to be used in the work without cutting, drilling or blasting.

1.6 SUBMITTALS

- A. Submit proposed method of blasting, delay pattern, explosive types, and type of blasting mat cover.

1.7 ACCEPTANCE

- A. Grading Tolerance: Top surface of subgrade = " 0.1 foot of line and grade.
- B. Payment is plan quantity by the cubic yard. If staked quantities differ by 5 percent or less make no adjustment to plan quantities.
- C. Notify the Engineer in writing before beginning excavation in any area or balances of excavation if the Contractor determines that the staked quantities differ from the plan quantities by more than 5 percent. The following procedures then apply:
 - 1. Provide calculations and plots in accordance with Section 01721, Article "Computations and Plots."
 - 2. Evaluate the "plan quantities" to "staked quantities" by individual cuts or balances as determined by the Engineer to provide the necessary accuracy.

- 3. Do not begin excavation of any cut sections that the Contractor determines to differ from plan quantities by more than 5 percent until the calculations and plots have been submitted, reviewed, and approved quantities are determined with the Engineer. No payments, partial or final will be made until submissions are provided and approved.
- D. When the Engineer determines the staked quantities differ from plan quantities by more than 5 percent, the approved quantities become the plan quantities (adjusted).
- E. When the Engineer directs changes in the alignment, grade, or scope of work that result in a change in the roadway excavation quantities, the revised quantities become the plan quantities (adjusted).
- F. Payment made at the original unit bid price for the plan quantities (adjusted).
- G. If plan quantities are adjusted from the original contract bid plan quantities, Section 00725, Article "Significant Changes in the Character of Work," applies.

1.8 STOCKPILING AND HANDLING

- A. Stockpile excavated material at approved locations.
- B. Waste excess excavation as required.

PART 2 PRODUCTS

2.1 MATERIALS FOR OVER-EXCAVATED AREAS

- A. Common Fill: Refer to Section 02056
- B. Select Aggregate: Refer to Section 02061
- C. Geotextile Fabric: Refer to Section 02075

2.2 EXPLOSIVES

- A. Type recommended by explosives firm.

2.3 DELAY FUSES

- A. Type recommended by explosives firm.

2.4 BLASTING MATERIALS

- A. Type recommended by explosives firm.

PART 3 EXECUTION

3.1 PREPARATION AND PROTECTION

- A. Refer to Section 01571.
- B. Pothole, expose, or otherwise locate buried utilities as necessary.
- C. Refer to Section 00820, article, "Protection and Restoration of Property and Landscape."
- D. Finish clearing and grubbing within the designated area following Section 02231 before starting excavation.

3.2 STORAGE OF BLASTING MATERIALS

- A. Securely store all explosives in compliance with Laws and Regulations.
- B. Mark all storage places clearly.

3.3 TOPSOIL

- A. Remove topsoil following Section 02912.

3.4 DEWATERING

- A. Keep excavation free from surface and ground water through all stages of construction.
 - 1. Maintain adequate drainage during all stages of construction through pumping, pipe culverts and drainage ditches.
 - 2. Provide temporary facilities when interrupting irrigation systems, sewer, underdrainage, etc.

3.5 EXCAVATION - STANDARD PROCEDURES

- A. Finish excavation to reasonably smooth and uniform surface.
- B. Provide and maintain satisfactory access to roads, streets, and adjacent property during all phases of construction according to the Traffic Control Plan.
- C. Remove material in all cut section to the depth shown. When necessary to obtain compaction, scarify to an 8.0 inch depth and compact to at least 96 percent of maximum laboratory density. Refer to Section 02324.
- D. Excavate and waste unsuitable material.
- E. Material for backfilling or finishing.
 - 1. Use suitable granular material encountered in excavation to construct the top layers of embankment, for finishing the roadbed, or for backfill when directed by the Engineer.
 - 2. When practical, haul the granular material directly from excavation to the final position on the roadbed.
- F. Contractor-furnished borrow may be used and roadway excavation wasted if there is no additional cost to the Department. Provide borrow that is equal to or better quality than the wasted roadway excavation.

3.6 ROCK REMOVAL - NONEXPLOSIVE METHOD

- A. Excavate solid rock 6.0 inches to 1.0 foot below subgrade and backfill with acceptable material.
 - 1. Rock removed more than 1.0 foot below subgrade will not be measured or paid for.
 - 2. Backfilling of depth greater than 1.0 foot below subgrade will not be measured or paid for.

3.7 ROCK REMOVAL- EXPLOSIVE METHOD

- A. Comply with UOSH Constructions Standards Chapter U rules and regulations.
- B. Provide a qualified explosives expert to act as an advisor and consultant during drilling and blasting operations.
- C. Do not blast beyond designated areas.

3.8 ROCK FACES

- A. Scale rock cuts of all loose rocks and fragments and leave in a neat and safe condition.

3.9 ASPHALT PAVEMENT

- A. Saw cut existing asphalt pavement on the designated line with straight vertical edges free from irregularities when joining new construction to existing pavement. Refer to Section 02705.
- B. Excavate all asphalt pavement.

END OF SECTION

Change One - August 29, 2002
No Changes made

Change Two – December 19, 2002
No Changes made

Change Three – February 27, 2003
Articles Revised
1.2 A, D, I added
1.3 added
1.7 B, C, D, E, F, G added
3.9 A added

Change Four - April 24, 2003
No changes made

Change Five - June 26, 2003
No changes made

Change Six - August 28, 2003
Articles Revised
1.1 D added
1.7 B, C, C.3, and D

SECTION 02896

BOUNDARY SURVEY

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Provide boundary survey, and plat.
- B. Furnish and set right-of-way markers.

1.2 RELATED SECTIONS

- A. Section 03055: Portland Cement Concrete.

1.3 REFERENCES

- A. ASTM A 53: Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.

PART 2 PRODUCTS

2.1 RIGHT-OF-WAY MARKERS

- A. Pipe: As shown in Standard Drawing GW 6. Meet ASTM A 53, Schedule 40, Galvanized.
- B. Cast bronze cap: Free from defects and constructed as shown in Standard Drawing GW 6.

2.2 CONCRETE

- A. Class B concrete per Section 03055.
- B. May substitute higher class of concrete.

PART 3 EXECUTION

3.1 RIGHT-OF-WAY MARKERS

- A. Place Right-of-Way Markers in accordance with Standard Drawing GW 6, including stamping onto each Right-of-Way Marker:
 - 1. Control Line station
 - 2. Elevation (To 2 decimal places)
 - 3. Professional Land Surveyor's License Number
 - 4. Year
 - 5. Exact control point location to within 0.01 feet
- B. Tightly rivet cap to the pipe.

3.2 BOUNDARY SURVEY

- A. Provide record of survey plat by Utah licensed surveyor.
- B. File mylar copy of plat with county surveyor, region, and Central Right-of Way offices of Department.
- C. Accuracy: Third Order, and Class I (1/10,000).

3.3 PLAT COMPLIANCE REQUIREMENTS

- A. Utah Code 17-23-17.
- B. Department procedure "Design Process."
- C. Show on the survey plat:
 - 1. Survey coordinates accurate to 5 decimal places and elevations accurate to 2 decimal places on all right-of way markers.
 - 2. Right-of-Way markers.
 - 3. Adjacent quarter corners and section corners with bearings and distances along the section line to the control line from each adjacent corner.
 - 4. Original highway control points (right-of-way markers).
 - 5. Local city or county monuments.
 - 6. Control line geometric information with references ties to section and quarter corners.
- D. Compute and draw plat, stationing, and coordinates to the same units as the project drawings.

- E. Deliver a copy of the survey plat to Engineer on a 3-1/2 inch disk in MicroStation format.
- F. Correction Factor: Show state plane to ground correction factor.
- G. Show the latitude and longitude of the control line at the beginning and end of the project.

END OF SECTION

Change One – August 29, 2002
No changes made

Change Two – December 19, 2002
No changes made

Change Three – February 27, 2003
Articles Revised
2.1 A, B and 3.1 A drawing number corrected

Change Four – April 24, 2003
No changes made

Change Five – June 26, 2003
No changes made

Change Six – August 28, 2003
Articles Revised
3.1 A 5 added
3.3 C 3 and 4

SECTION 03211

REINFORCING STEEL AND WELDED WIRE

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Materials and procedures for placing reinforcing steel and steel welded wire fabric.
- B. Coating for reinforcing steel and steel welded wire fabric.

1.2 REFERENCES

- A. AASHTO M 31: Deformed and Plain Billet-Steel Bars for Concrete Reinforcement
- B. AASHTO M 55: Steel Welded Wire Fabric, Plain, for Concrete Reinforcement
- C. AASHTO M 111: Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
- D. AASHTO M 232: Zinc Coating (Hot-Dip) on Iron and Steel Hardware
- E. AASHTO M 284: Epoxy Coated Reinforcing Bars
- F. ASTM A 36: Carbon Structural Steel
- G. ASTM A 767: Zinc-Coated (Galvanized) Steel Bars for Concrete Reinforcement

1.3 SUBMITTALS

- A. Furnish Certificates of Compliance from the manufacturer stating that the materials meet this specification.
- B. Prequalify all coatings meeting AASHTO M 284 Annex A1: "Prequalification of Organic Coatings for Steel Reinforcing Bars."
 - 1. Furnish a copy of the Prequalification Test Report to the Department's Construction and Materials Division.

2. Provide an 8-ounce sample of the coating material from each batch in conformance AASHTO M 284 Annex A1.2.2, to the Department's Construction and Material Division.
- C. A copy of the purchase order or a detailed letter to the Engineer verifying the warehouses or fabricators of the steel reinforcing bars or welded wire reinforcement with required samples.
- D. Samples of the steel reinforcing bars or welded wire reinforcement from the fabricator's source, following UDOT's Minimum Sampling and Testing Guide.
 1. Provide 3 samples of each size cut to 2 ft length.
 2. Samples may be waived if the original contract amount is less than 4,000 lbs.
 3. Supply test bars at no additional cost to Department.
- E. Splice Shop Drawings: Submit five sets for approval showing the proposed number and locations of each mechanical butt splice splicing.
 1. Submit before ordering the reinforcing steel whenever splicing requirements vary from the plans and specifications, including all lengths including splices.
- F. Submit two sample mechanical butt splices and test to destruction in the presence of the Engineer.
- G. Reinforcing Steel Shop drawings.
 1. Submit before ordering the reinforcing steel whenever splicing requirements vary from the plans and specifications, including all lengths including splices.

1.4 QUALITY ASSURANCE

- A. The Department may witness coating processes for project work and obtains random samples by heat number and manufacturer to conduct verification testing.
- B. Prequalification:
 1. Epoxy Coating Suppliers: through UDOT's Quality Management Plan - Reinforcing Steel Epoxy Coating.
 2. Galvanized Coating Suppliers: through UDOT's Quality Management Plan - Reinforcing Steel Galvanized Coating.
 3. Reinforcing steel suppliers through UDOT's Quality Management Plan (QMP) for steel.

1.5 DELIVERY, STORAGE AND HANDLING

- A. Do not damage the bars or the coating during handling and storage.
 - 1. Use systems with padded contact areas when handling epoxy coated bars.
 - 2. Pad all bundling bands for epoxy coated bars.
 - 3. Lift all bundles with strong-back, multiple supports, or a platform bridge.
 - 4. Do not drop or drag bars.
- B. Repair damaged bars or coating at no additional cost to the Department.

PART 2 PRODUCTS

2.1 REINFORCING STEEL

- A. Deformed billet-steel bars as specified. Meet AASHTO M 31, Grade 60

2.2 EPOXY AND GALVANIZED COATINGS

- A. As specified. Meet AASHTO M 284 OR AASHTO M 111.
- B. Coat bars as shown on the plans.
 - 1. Maintain epoxy coating thickness between 8 and 12 mils.
 - 2. Maintain galvanized coating thickness as specified. ASTM A 767.
 - 3. Coat bars after bending, unless the fabricator can show that satisfactory results can be obtained by coating before bending.
 - 4. Reject any bent bars with visible cracks or damage in the coating.

2.3 WIRE AND WIRE REINFORCEMENT

- A. Cold-Drawn Steel Wire: As specified. Meet AASHTO M 55.
- B. Welded Steel Wire Reinforcement: As specified. Meet AASHTO M 55.
- C. Tie Wire: 16 gauge uncoated.
 - 1. Use coated wire.

2.4 BAR SUPPORTS

- A. Epoxy-coated, galvanized, or plastic-coated, or plastic bar supports:
 - 1. Meet the requirements of the "Bar Support" chart following this Section.
 - 2. Remove contaminants that affect the adhesion of the coating to the wire.

3. Use an electrostatic-spray method, fluidized bed, or flocking to apply an epoxy coating.
 4. Apply plastic coating by spraying, dipping, or using as a powder.
 5. Maintain galvanized coating thickness as specified. AASHTO M 111.
 6. Maintain the thickness of epoxy or plastic coatings at a minimum of 5 mils with no maximum.
 7. Use patching material per the manufacturer's recommendation to repair damaged coating.
 - a. Use patching material that is compatible with the coating, and that is inert in concrete.
 - b. Hanger marks on the coated bar supports that result from the coating application process are acceptable and are not considered damaged coating.
- B. Precast concrete block bar supports:
1. Minimum 28-day compressive strength of 2,500 psi
 2. Three inch thick supports with sides ranging from 4 inches to 6 inches with a minimum soil contact area of 24 in².

2.5 MECHANICAL ANCHORAGE DEVICE

- A. Splice Coupler (**Same coating system as bar**)
1. Reinforcing steel splice coupler shown by tests to be capable of developing in tension 175 percent of the strength of the reinforcing bar without damage to the concrete.
 2. Steel Plate: Meet ASTM A 36.

PART 3 EXECUTION

3.1 PLACEMENT

- A. Maintain a clean surface keeping all reinforcement free from loose mill scale, loose or thick rust, dirt, paint, oil, or grease.
- B. Bend all bars accurately.
- C. Place all reinforcement in designated position and securely hold in position while placing and compacting concrete.
- D. Wire bars together with ties at all intersections except when spacing is less than 9 inches in each direction, in which case, tie at alternate intersections.

- E. Maintain the specified distance from the forms and between layers of reinforcement by means of prefabricated chairs, ties, hangers, or other approved devices.
- F. Precast concrete block bar supports are only allowed when the concrete is placed in contact with the soil and then only as the support for the bottom mat of bars.
- G. Do not tack weld reinforcing bars in place.
- H. Overlap at least one panel of welded-wire fabric sheets to each other and fasten at the ends and edges.
- I. Support reinforcing steel for concrete “T” beams, pier caps, approach slabs, and deck slabs on metal chairs or slab bolsters following this Section, article, “Bar Supports.”
- J. Space chairs for supporting the top steel and bolsters for supporting the bottom steel not more than 4 ft on center of the bar in each direction.
- K. Tie deck steel to beams or forms at regular intervals of not more than 5 ft on center along the beams to prevent steel movement during concrete placement.
- L. Support reinforcing steel for slabs on grade on metal chairs attached to a sand plate, or use precast concrete block supports following this Section, article, “Bar Supports.”
- M. Engineer verifies placing and fastening of reinforcement in each section of work before any concrete is deposited.

3.2 FIELD CUTTING

- A. Saw or shear coated bars that are specified to be cut in the field. Do not flame cut.
- B. Repair the sawed or sheared end using the specified patching or repair material.

3.3 SPLICING

- A. Furnish all reinforcing steel in the lengths specified.
- B. Do not splice bars, except where specified.
- C. Stagger splices as far as possible.

- D. Place and tie lapped splices in the bars. Maintain the minimum distance to the surface of the concrete shown.
- E. Do not lap splice No. 14 and No. 18 bars.
 - 1. Use mechanical butt splices when using No. 14 or No. 18 bars.
 - a. Decide the number and location of the splices with the following limitations:
 - 1.) Extend bars a minimum of 10 ft above the top of footing.
 - 2.) Stagger splices such that no particular bar designation is spliced more than 50 percent in 5 ft.
 - b. Use a standard, approved, exothermic process for mechanical butt splicing where the molten filler metal, contained by a high-strength steel sleeve of larger inside diameter than the bars, is introduced into the annular space between bars and the sleeve and between the ends of the bars.
 - c. After cooling and hardening of the filler metal, the splice must be capable of transferring the minimum ultimate tensile strength of the reinforcing bar from one bar to the other by the mechanical strength of the splice components.
 - d. The splice must not depend on fusion of the filler metal with the bars.
 - 1) Do not heat the bars to their melting point during the splicing process.
 - 2) Do not allow the degree of heat required to effect the splice to decrease the structural properties of the bars or effect their original hardness.
 - e. Splice according to the manufacturer's recommendations using the manufacturer's standard jigs, clamps, ignition devices, and other required accessories to make splices. Preheat bars where required by the manufacturer.
- F. Use one of the following mechanical butt splices for bars sizes No. 3 through No. 11 when designated on the plans. Follow the manufacturer's published recommendations for equipment and splicing procedures.
 - 1. A full mechanical connection that develops in tension or compression at least 125 percent of the specified yield strength of the bar.
 - 2. As described in this section, article, "Splicing," paragraph E.

3.4 BENDING

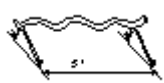
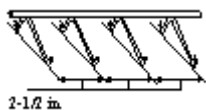



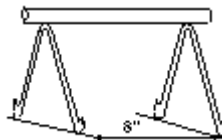
- A. Bend reinforcement to the shapes specified. Refer to CRSI Manual of Standard Practice.
- B. Do not heat the bars during the bending operations.

- C. Cut and bend as specified.
- D. Complete all bending before coating except as specified for bent bars.

3.5 FIELD QUALITY CONTROL

- A. Have the coated bars inspected for damage to the coating after the bars are in place and immediately before concrete placement.
- B. Repair all visible defects using the specified method recommended by the coating manufacturer.

Bar Supports

Types and Sizes				Minimum Wire Sizes ² and Geometry			
Symbol	Bar Support Illustration	Type of Support	Standard Sizes	Nominal Height	Carbon Steel		Geometry
					Top	Legs	
SB ¹		Slab Bolster	3/4, 1, 1-1/2, and 2 inch heights in 5 ft and 10 ft lengths	All	4 ga. Corrugated	6 ga.	Legs Spaced 5 inches on Center, Vertical Corrugations Spaced 1 inch on Center (See Note 3)
BB ¹		Beam Bolster	1, 1-1/2, and 2 inch; over 2 inch to 5 inch heights in increments of 1/4 inch lengths of 5 ft.	Up to 1-1/2 inch incl. Over 1-1/2 inch to 2 inches incl. Over 2 inches to 3-1/2 inches incl. Over 3-1/2 inch	7 ga. 7 ga. 4 ga. 4 ga.	7 ga. 7 ga. 4 ga. 4 ga.	Legs Spaced 2-1/2 inches on Center (See Note 3)
BC		Individual Bar Chair	3/4, 1, 1-1/2, and 1-3/4 inch heights	All	-----	7 ga.	(See Note 3)
JC		Joist Chair	4, 5, and 6 inch widths and 3/4, 1, and 1-1/2 inch heights	All	-----	6 ga.	(See Note 3)
HC or HPC*	 * SAND PLATE NEED NOT BE COATED	Individual High Chair	2 inch to 15 inch heights in increments of 1/4 inch.	2 inches to 3-1/2 inches incl. Over 3-1/2 inches to 5 inches incl. Over 5 inches to 9 inches incl. Over 9 inches to 15 inches incl.	----- ----- ----- -----	4 ga. 4 ga. 2 ga. 0 ga.	Legs at 20 degree or less with vertical. When height exceeds 12 inches, legs are reinforced with welded crosswires or encircling wires (See Note 4)
CHC		Continuous High Chair	Same as HC in 5 ft and 10 ft lengths	2 inches to 3-1/2 inches incl. Over 3-1/2 inches to 5 inches incl. Over 5 inches to 9 inches incl. Over 9 inches to 15 inches incl.	2 ga. 2 ga. 2 ga. 2 ga.	4 ga. 4 ga. 2 ga. 0 ga.	Legs at 20 degree or less with vertical. All legs 8-1/4 inches on center maximum, with leg within 4 inches of end of chair, and spread between legs not less than 50 percent of nominal height. (See Note 5)

Bar Supports Table, page 2

Notes:

1. Top wire on continuous supports, not otherwise designated as corrugated, may be straight or corrugated at the option of the manufacturer.
2. Minimum wire sizes are American steel and wire gauges.
3. To provide adequate stability against overturning, the leg spread measured between points of support on the minor axis of the support shall not be less than 70 percent of the nominal height.
4. To provide adequate stability against overturning, the leg spread measured between points of support on the minor axis of the support shall not be less than 55 percent of the nominal height.
5. To provide adequate stability against overturning and to provide adequate load capacity, the leg spread measured between points of support on the minor axis of the support shall not exceed the minimum and maximum percentages of the nominal height, as shown.

Nominal Height (inches)	Distance Between Supports as a Percent of Nominal Height	
	Minimum	Maximum
Under 4	70	No Limit
4	70	95
6	65	90
8	60	85
10	55	80
12	50	75
Over12	50	75

END OF SECTION

Change One - August 29, 2002

No changes made

Change Two - December 19, 2002

No changes made

Change Three - February 27, 2003

No changes made

Change Four - April 24, 2003

No changes made

Change Five - June 26, 2003

No changes made

Change Six - August 28, 2003

Revised Article

3.3 F 1

SECTION 09972

PAINTING FOR STRUCTURAL STEEL

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Prepare and paint all surfaces except where indicated otherwise.

1.2 REFERENCES

- A. ASTM E 11: Wire Cloth and Sieves for Testing Purposes.
- B. Federal Standard No. 595: Color.
- C. SSPC-SP 6: Commercial Grade Blast Cleaning.
- D. SSPC-SP 10.
- E. SSPC-PA1.
- F. SSPC Paint Application Guide No. 3: "A Guide to Safety in Paint Application."

1.3 SUBMITTALS

- A. Detailed plan for approval for protection methods that includes Environmental Protection.
- B. Source and gradation of the sandblast abrasive.
- C. Type and source of solvent, if required.
- D. Manufacturer's information regarding the specified coating materials, including:
 - 1. Required wet- and dry-film thickness
 - 2. Project safety data
 - 3. Thinning recommendations
 - 4. Temperature requirements
 - 5. Profile recommendations
 - 6. Mixing and application procedures

- 7. Required equipment
- E. Test samples as required.

1.4 SAMPLES

- A. Department tests samples from each batch or lot of paint using infrared and gas chromatography techniques prior to use.
 - 1. Submit samples to UDOT's Central Chemistry Lab.
 - 2. Paints must match the spectrum samples on file in the UDOT Central Laboratory.
- B. Reject paint that does not match the standard.

1.5 PAINTER AND SANDBLASTER QUALIFICATIONS

- A. Responsible Parties:
 - 1. Contractors and subcontractors performing surface preparation or coatings applications in the field:
 - a. Certification required prior to contract award by the Society for Protective Coatings (SSPC) to the requirements of SSPC QP 1.
 - b. Remain certified for the duration of the project.
 - 2. Contractors, subcontractors and/or fabricators performing shop surface preparation or coatings applications:
 - a. Certification required prior to contract award by the Society for Protective Coatings (SSPC) to the requirements of SSPC QP 3 enclosed shop or an AISC category III painting endorsement.
 - b. Remain certified for the duration of the project.
 - 3. Fabricators, painting contractors, and painting subcontractors:
 - a. Do not perform work if certification has expired.
 - b. Requests for time extension for any delay to the completion of the project due to an inactive certification will not be considered and liquidated damages applies.
 - c. Notify the Department of any change in certification status.
- B. Disqualification:
 - 1. Engineer may withdraw qualification for questionable performance of the painter, blasting operator, or the equipment.
 - 2. Disqualifications results from inadequate surface preparation, improper profile, runs, sags, overspray, thin film thickness, excessive film build-up, uneven coating, nonuniform color, improper curing, or any other defect in the coating system.

1.6 PAYMENT PROCEDURES

- A. Surface Preparation, or Painting, or both, are included in the contract lump sum price for structural steel.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Select a complete 3-part coating system consisting of a Zinc primer, Epoxy or Urethane intermediate coat and aliphatic Urethane top coat as approved by the New England Protective Coating Specification Criteria (NEPCOAT). This list may be found at <http://www.state.nh.us/dot/bridgedesign/pdf/nepcoatQPL.pdf>.
- B. Use paint color No. 26293 for the first field coat and No. 26306 for the top coat following Federal Standard 595.

PART 3 EXECUTION

3.1 INSPECTION

- A. Engineer examines surfaces prior to surface preparation and prior to application of each succeeding coating. Correct any condition that is determined, by the Engineer, to negatively affect a proper coating application.
- B. Provide safe access to permit inspection of the steel before and after painting. Use rubber rollers or other approved protective devices for scaffold fastenings. Do not mar or damage freshly coated surfaces.

3.2 PREPARING SURFACES

- A. Painted steel: Clean surfaces with clean petroleum solvents and then blast clean to a near-white condition following SSPC-SP 10. Use clean oil-free air.
 - 1. Grind off all fins, tears, slivers, and burred or sharp edges present on any steel member, or those that result from the blasting operation.
 - a. Reblast where needed.
 - b. Remove all mill scale.
 - c. Do not scar metal.
 - d. Produce a 0.5 - 2 mils uniform profile.
 - 2. Remove all abrasive and paint residue using either a commercial vacuum cleaner or by double blowing.
 - a. Equip commercial vacuum cleaner with a brush-type cleaning tool.

- b. Double blowing: vacuum the top surfaces of all structural steel, including top and bottom flanges, longitudinal stiffeners, splice plates, hangers, etc., after the double-blowing operations are completed.
 - 3. Keep the steel dust-free and prime within 24 hours after cleaning. Reblast to a near-white condition if any rust is visible before priming.
 - 4. Protect freshly coated surfaces from subsequent blast-cleaning operations.
 - a. Repair surface if damaged.
 - b. Mask all areas requiring field welding before shop painting.
 - 5. Have the surfaces inspected and approved by Engineer or Construction and Materials Division representative of Department before applying shop coat.
 - 6. Apply the shop coat at the fabrication site.
 - 7. Apply Mist Coat to the top flange after shear studs have been attached.
- B. Field painting:
- 1. Repair all damage to shop coat that occurs during shipping, handling, and erection.
 - 2. Power wash steel without the field coat to remove contaminants or other foreign matter from the primed surface.
 - 3. Blast clean any rusted areas to a near-white finish. Thoroughly clean the coating surrounding the blasted area and re-prime using an organic zinc from the same paint manufacturer and the same dry-film thickness specified for the shop coat. (SSPC-SP 10)
 - 4. Remove all concrete drippings, abrasive, and paint residue. If using double blowing, vacuum the top and bottom flanges, splice plates, longitudinal stiffeners, hangers, etc., after completing double-blowing operations.
 - 5. Allow the touch-up coat to dry according to manufactures recommendation as listed on the paint data sheet.
- C. Weathering steel:
- 1. Construct so that erection marks on the steel are not visible after the structure is completed.
 - 2. Commercially sandblast all faying surfaces according to the specification standards. Meet SSPC-SP6.
 - 3. Blast clean the following surfaces after the deck concrete is placed to specified surface finish:
 - a. Underside of the exterior portion of the top flange, and underside of all bottom flanges.
 - b. The exterior portion of web.
 - c. Top side and outside edge of the exterior portion of the bottom flange.

3.3 PREPARING PAINT MATERIALS

- A. Mix and thin paint materials per manufacturer's product data sheets for both shop and field painting. If weather conditions require paint thinning, follow manufacturer's recommendations.
- B. Mix the paint to a lump-free consistency with a high shear mixer (such as a Jiffy mixer), according to the producer's directions.
 - 1. Do not use paddle mixers or paint shakers.
 - 2. Keep paint in the original containers
 - 3. Mix until all the metallic powder or pigment is suspended, and until all paint solids that may have settled to the bottom of the container are thoroughly dispersed.
- C. Strain the paint through a screen having openings no larger than those specified for a No 50 sieve per the material standard. ASTM E 11.
- D. After straining, continuously agitate the mixed material up to and during the time of application.

3.4 APPLYING PAINT

- A. Apply each coat at proper consistency and thickness, and in accordance with the manufacturer's recommendations, including field coating. When using spray nozzles, use pressures recommended by the producer of the coating system.
- B. Produce a uniform, even coating that bonds to the underlying surface. Follow SSPC-PA1.
- C. Apply field coats at the construction site after steel erection work is completed.
 - 1. Do not apply field coats until Engineer approves the surface.
 - 2. Dry-film thickness of the first field coat should be greater than 4 mils.
 - 3. Keep the dry-film thickness of the top coat greater than 2 mils.
- D. Weather:
 - 1. If weather conditions require paint thinning, follow the manufacturer's recommendations.
 - 2. Temperature of the air and the steel must be above 40 degrees F, but not so hot as to cause the paint to blister.
 - 3. Relative humidity must be less than 85 percent or the combination of temperature, and humidity conditions must inhibit surface condensation.
 - 4. Test humidity by applying a thin film of water to a small area. If the film evaporates within 15 minutes, the surface may be painted.

- E. Remove any shop coat that shows any indication of “mud-cracking” or adds more than 7 mils to a soundly bonded coating or bare steel.
- F. Thoroughly clean areas having deficient primer thickness to remove all dirt.
- G. Apply an immediate top coat to any surface at the fabrication site that will be inaccessible for painting after field erection.
- H. Do not load material for shipment until shop paint is dry to the touch and until the UDOT inspection sticker is placed on the member by the inspector. Remove the sticker before painting field coats.

3.5 PROTECTION

- A. Suspend work if protection is unsatisfactory.
- B. Protect pedestrian and vehicular traffic.
- C. Protect from splatter, splashes and overspray all portions of the structures that are not to be painted including superstructure, substructure, slope, and highway appurtenances. Protect where other damage during painting and blast cleaning operations could occur.
- D. Use barriers during any blast-cleaning operations to protect pedestrians and vehicles, and to prevent spreading or falling of abrasive materials and debris on the traveled portions of the pavement. Remove any abrasive materials and debris on pavement, shoulders, or slope paving before reopening work areas to traffic.
- E. Provide employees performing the blast-cleaning operations air-supplied sandblasting hoods approved by the US Bureau of Mines.
- F. Minimum requirements for the air supply system:
 - 1. Airline filter, pressure-reducing valve with gauge, and pressure release valve.
 - 2. Do not allow the air supply to be contaminated with harmful materials or elements.

3.6 FIELD QUALITY ASSURANCE

- A. Minimum Coating Thickness: Apply two or more coats if the required film thickness cannot be obtained by one coat without producing runs, bubbles, or sags.

END OF SECTION

Change One – August 29, 2002
No changes made

Change Two – December 19, 2002
No changes made

Change Three – February 27, 2003
No changes made

Change Four – April 24, 2003
No changes made

Change Five – June 26, 2003
No changes made

Change Six – August 28, 2003
Articles Revised

1.5
2.1 A
3.1 A
3.2 A 1 b and d
3.2 B 3 and 5
3.4 E, G, H

SECTION 09991

CLEANING AND REPAINTING STRUCTURAL STEEL

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Clean and repaint existing structural steel surfaces including all bearing units for existing paint systems that have red lead primer.
- B. Remove existing paint from existing structural steel surfaces.
- C. Prepare existing steel surface for repainting, and paint the cleaned structural steel surfaces.

1.2 REFERENCES

- A. ASTM E 11: Wire Cloth and Sieves For Testing Purposes
- B. Federal Standard No. 595: Color
- C. SSPC-PA 1: Surface Preparation
- D. SSPC Paint Application Guide No. 3, "A Guide to Safety in Paint Application."
- E. SSPC-SP10: Near White Blast
- F. SSPC-SP11: Mechanical Cleaning
- G. SSPC-Vis 1: Visual Standard

1.3 SUBMITTALS

- A. The Contractor or the subcontractor must submit a written compliance program indicating that they have the equipment, training, containment, and monitoring system to comply with OSHA's standard on lead exposure in construction, as published in Federal Register, Section 29 CFR 1962.62, May 4, 1993.

1.4 PAINTER AND SANDBLASTER QUALIFICATIONS

- A. Responsible Parties:
 - 1. Contractors and subcontractors performing surface preparation or coatings applications in the field:
 - a. Certification required prior to contract award by the Society for Protective Coatings (SSPC) to the requirements of SSPC QP 2 Category A.
 - b. Remains certified for the duration for the project.
 - 2. Fabricators, painting contractors, and painting subcontractors:
 - a. Do not perform work if certification has expired.
 - b. Requests for time extension for any delay to the completion of the project due to an inactive certification will not be considered and liquidated damages applies.
- B. Disqualification:
 - 1. Engineer may withdraw qualification for questionable performance of the painter, blasting operator, or the equipment.
 - 2. Disqualification results from inadequate surface preparation, improper profile, runs, sags, overspray, thin film thickness, excessive film build-up, uneven coating, nonuniform color, improper curing, or any other defect in the coating system.

1.5 REQUIREMENTS FOR COATING APPLICATION

- A. Have the painter, the blasting operator, or both consult with the manufacturer's technical representative for answers to technical questions relating to the application of the specified coating materials.
- B. Obtain surface preparation approval from the Engineer before applying paint.
- C. Use equipment capable of taking dry-film thickness readings on all portions including nuts and bolts.

1.6 PROJECT CONDITIONS/WEATHER LIMITATIONS

- A. If weather conditions require paint thinning, follow the manufacturer's recommendations.
- B. Apply paint only when the following weather conditions exist:
 - 1. The temperature of the air and the steel: above 40 degrees F.
 - 2. The relative humidity:
 - a. Less than 85 percent, or such that the combination of temperature and humidity conditions inhibits surface condensation.

- b. To test humidity, apply a thin film of water to a small area. If the film evaporates within 15 minutes, the surface may be painted.
- c. Steel temperature a minimum of 5 degrees F above dew point.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Blasting abrasive: type and size as specified.
- B. Solvent: type and source as required.
- C. Coating materials:
 - 1. Mix properly following manufacturer's recommendations and project specifications.
 - 2. Use necessary equipment for the proper application of the specified coating.

2.2 COATING SYSTEM

- A. Select a complete 3-part coating system consisting of a Zinc primer, Epoxy or Urethane intermediate coat, and aliphatic urethane top coat as approved by the New England Protective Coating Specification Criteria (NEPCOAT). This list may be found at <http://www.state.nh.us/dot/bridgedesign/pdf/nepcoat.pdf>
- B. Use manufacturer's information regarding the specified coating materials, including required wet- and dry-film thickness, project safety data, thinning recommendations, temperature requirements, profile recommendations, mixing and application procedures, and required equipment.
- C. Use coating materials properly mixed meeting the manufacturer's recommendations and project specifications.
- D. Paint Color: Federal Standard No. 595.
 - 1. Field coat: Color # 26293.
 - 2. Top coat: Color # 26306.

2.3 MIXING

- A. Mix the paint to a lump-free consistency with a high shear mixer (such as a Jiffy mixer), according to the producer's directions.
 - 1. Do not use paddle mixers or paint shakers.

2. Keep paint in the original containers and mix until all the metallic powder or pigment is suspended.
 3. Continue mixing until all solids that may have settled to the bottom of the container are thoroughly dispersed.
- B. Strain the paint through a screen having openings no larger than those specified for a No. 50 sieve. ASTM E 11.
- C. Continuously agitate the strained, mixed material up to and during the time of application.

2.4 QUALITY CONTROL

- A Sampling:
1. Take samples from each batch or lot of paint to be tested.
 2. Test the samples using infrared and gas chromatography techniques prior to use.
 3. Reject paint that does not match the standard. The prints must match the spectrum samples on file in the Central Laboratory.

PART 3 EXECUTION

3.1 PREPARATION

- A. Clean surfaces, including bearing units, of all oil, grease, and dirt with clean petroleum solvents or steam cleaning prior to blasting operation. SSPC-SP10.
- B. Blast surfaces clean to near white with 0.5 to 2 mil profile.
- C. Discoloration, light shadows, or slight streaks caused by stains of rust is not allowed on more than 5 percent of surface area.
- D. Define acceptable surface preparation using SSPC-Vis 1.
- E. Use SSPC-SP-11 to clean areas such as backside of base plates, corners, etc., that cannot otherwise be cleaned.
- F. Prime the surface within 24 hours from blasting.
- G. Do not prime the surface if rust has started to form. Clean the surface again before applying the prime coat.
- H. Protection:

1. Fully contain all material resulting from paint overspray.
 2. Enclosure system must withstand extreme high winds.
 3. Protect all portions of the structure that will not be painted.
- I. Recover a minimum of 95 percent of debris from cleaning operation.
1. Sample debris from cleaning operation. Submit samples to UDOT Materials and an independent accredited Materials Testing Lab for composition and disposal evaluation.
 2. Place reclaimed waste paint in EPA-USDOT approved containment. Store at the project site.
 3. The Engineer tests the waste paint. Contact UDOT chemist at 965-4298. Submit paint composition and disposal evaluation results from the independent material testing lab. Disposition will be given to the contractor within 30 days. Dispose of waste paint as directed by the Engineer, submit disposal certificates for all waste paint.

3.2 APPLICATION

- A. Conform to Field Inspection Provisions:
1. Do not apply paint until the Engineer approves the prepared surface.
 2. Use rubber rollers or other approved protective devices on scaffold fastenings.
 3. Do not use metal rollers, clamps, and other types of fastenings which mar or damage freshly coated surfaces.
- B. Apply paint with spray nozzles at pressures recommended by the producer of the coating system.
- C. Prime Coat:
1. Maintain the dry-film thickness of the prime coat between 2.5 and 6.0 mils.
 2. Apply two or more coats without producing runs, bubbles, or sags if the required film thickness cannot be obtained by one coat.
 3. Scrape any coat that produces "mud-cracking" or adds more than 7.0 mils to a soundly bonded coating or bare steel. Re-coat the surface.
 4. Thoroughly clean areas having deficient primer thickness with power washing equipment to remove all dirt. Wire-brush, vacuum, and re-coat the area.
- D. Intermediate Coat: Paint as described in the standard specifications to produce a uniform, even coating which bonds to the underlying surface. SSPC-PA 1.
1. Use the coating type and minimum dry-film thickness specified.
 2. Produce a dry-film thickness of the intermediate coat greater than 4 mils.
- E. Finish coat: Keep the dry-film thickness greater than 2 mils.

- F. Use wet and dry-film thickness gauges for testing the coating thickness during and after application.
- G. Painting Safety: Follow SSPC Paint Application Guide No. 3, “A Guide to Safety in Paint Application.”

END OF SECTION

Change One – August 29, 2002

No changes made

Change Two – December 19, 2002

No changes made

Change Three – February 27, 2003

No changes made

Change Four – April 24, 2003

No changes made

Change Five – June 26, 2003

No changes made

Change Six – August 28, 2003

Articles Revised

1.1 A

1.3 added

1.4

1.6 B 2 c added

2.2 A

3.1 I

SECTION 09992

CLEANING AND OVERCOATING STRUCTURAL STEEL

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Clean and overcoat existing structural steel surfaces including all bearing units for existing paint systems that have red lead primer.

1.2 REFERENCES

- A. ASTM E 11: Wire Cloth and Sieves For Testing Purposes.
- B. Federal Standard No. 595: Color.
- C. SSPC 25: Prime and Intermediate Coat Paint.
- D. SSPC 104, Type II: Specified Type of Paint.
- E. SSPC-PA 1: Surface Preparation.
- F. SSPC-SP3: Mechanical Cleaning.
- G. SSPC Paint Application Guide No. 3 "A Guide to Safety in Paint Application."

1.3 DEFINITIONS

- A. Overcoating: spot prime, an intermediate coat, and a top coat of paint over the entire surface on each girder.

1.4 SUBMITTALS

- A. The Contractor or the subcontractor must submit a written compliance program indicating that they have the equipment, training, containment and monitoring system to comply with OSHA's standard on lead exposure in construction, as published in Federal Register, Section 29 CFR 1962.62, May 4, 1993.

1.5 QUALIFICATIONS AND EVALUATION

- B. Responsible Parties:
 - 1. Contractors and subcontractors performing surface preparation or coatings applications in the field:
 - a. Certification required prior to contract award by the Society for Protective Coatings (SSPC) to the requirements of SSPC QP 2 Category A.
 - b. Remains certified for the duration for the project.
 - 2. Fabricators, painting contractors, and painting subcontractors:
 - c. Do not perform work if certification has expired.
 - d. Requests for time extension for any delay to the completion of the project due to an inactive certification will not be considered and liquidated damages applies.
- B. Disqualification:
 - 1. Engineer may withdraw qualification for questionable performance of the painter, blasting operator, or the equipment.
 - 2. Disqualification results from inadequate surface preparation, improper profile, runs, sags, overspray, thin film thickness, excessive film build-up, uneven coating, nonuniform color, improper curing, or any other defect in the coating system.

1.6 REQUIREMENTS FOR COATING APPLICATIONS

- A. Have the painter, the blasting operator, or both consult with the manufacturer's technical representative for answers to technical questions relating to the application of the specified coating materials.
- B. Obtain surface preparation approval from the Engineer before applying paint.
- C. Use equipment capable of taking dry-film thickness readings on all portions including nuts and bolts.

1.7 PROJECT CONDITIONS/WEATHER LIMITATIONS

- A. If weather conditions require paint thinning, follow the manufacturer's recommendations.
- B. Apply paint only when the following weather conditions exist:
 - 1. The temperature of the air and the steel: above 40 degrees F.
 - 2. The relative humidity:
 - a. Less than 85 percent, or such that the combination of temperature and humidity conditions inhibits surface condensation.

- b. To test humidity, apply a thin film of water to a small area. If the film evaporates within 15 minutes, the surface may be painted.
- c. Steel temperature a minimum of 5 degrees F above dew point.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Solvent: As recommended by the manufacturer.

2.2 COATING SYSTEM

- A. Select a coating system as approved by the New England Protective Coating Specification Criteria (NEPCOAT). This list may be found at <http://www.state.nh.us/dot/bridgedesign/pdf/nepcoatOPLm.pdf>. Use a prime and intermediate coat. SSPC 25
- B. Top Coat:
 - 1. Gray tinted alkyd paint. SSPC 104, Type II.
 - 2. Use Color No. 26306. Federal Standard No. 595.
- C. Use manufacturer's information regarding the specified coating materials, including project safety data, thinning recommendations, temperature requirements, profile recommendations, mixing and application procedures, and required equipment.
- D. Properly mix coating system. Meet the manufacturer's recommendations and project specifications.
- E. Use necessary equipment for the proper application of the specified coating, observing safety practices found in SSPC Paint Application Guide No. 3, "A Guide to Safety in Paint Application."
- F. Use wet and dry-film thickness gauges for testing the coating thickness during and after application.

2.3 TESTING

- A. Provide samples from each batch or lot of paint prior to use.
- B. UDOT Central Lab tests for acceptance.

2.4 MIXING PAINT

- A. Mix the paint to a lump-free consistency according to the producer's directions.
 - 1. Keep paint in the original containers and mix until all the pigment is suspended.
 - 2. Continue mixing until all solids that may have settled to the bottom of the container are thoroughly dispersed.
- B. Strain the paint through a screen having openings no larger than those specified for a No. 50 sieve. ASTM E 11.

PART 3 EXECUTION

3.1 PREPARATION

- A. Clean surfaces of all oil, grease, and dirt with clean petroleum solvents and low-pressure water-jetting wash.
- B. Remove all corrosion, and all paint that shows peeling, brittleness, checking, scaling, or general disintegration, including bearing units.
 - 1. Use vacuum shrouded power tool cleaning.
 - 2. Remove paint from the area and beyond the edges of the area so that remaining paint system shows no rusting or blistering underneath, and adheres tightly to the surface. Remaining paint system should have sufficient adhesion that cannot be lifted as a layer by inserting a blade or putty knife under it.
 - 3. Feather the edges of the remaining paint system around the cleaned areas so the repainted surface appears smooth.
- C. Protection:
 - 1. Fully contain all material resulting from surface preparation and paint overspray.
 - 2. Enclosure system must withstand extreme high winds.
 - 3. Protect all portions of the structure that will not be painted.
- D. Recover a minimum of 95 percent of debris from cleaning operation.
 - 1. Sample debris from cleaning operation. Submit samples to UDOT Materials and an independent accredited Materials Testing Lab for composition and disposal evaluation.
 - 2. Place reclaimed waste paint in EPA-USDOT approved containment. Store at the project site.

3. The Engineer tests the waste paint. Contact UDOT chemist at 965-4298. Submit paint composition and disposal evaluation results from the independent material testing lab. Disposition will be given to the contractor within 30 days. Dispose of waste paint as directed by the Engineer, submit disposal certificates for all waste paint.

3.2 APPLICATION

- A. Do not apply paint until the Engineer approves the prepared surface.
 1. Use rubber rollers or other approved protective devices on scaffold fastenings.
 2. Do not use metal rollers, clamps, and other types of fastenings that mar or damage freshly coated surfaces.
- B. Apply paint with spray nozzles at pressures recommended by the producer of the coating system.
- C. Apply a minimum dry-film thickness of 2 mils spot prime, 2 mils intermediate coat, and a minimum of 1.5 mils for the top coat. Use a magnetic film thickness gauge for verification.
- D. Apply two or more coats if the required film thickness cannot be obtained by one coat without producing runs, bubbles, or sags.
- E. Paint as described in the standard specifications to produce a uniform, even coating which bonds to the underlying surface. SSPC-PA 1.

END OF SECTION

Change One – August 29, 2002

No changes made

Change Two – December 19, 2002

No changes made

Change Three – February 27, 2003

No changes made

Change Four – April 24, 2003

No changes made

Change Five – June 26, 2003

No changes made

Change Six – August 28, 2003

Articles Revised

1.4 A

1.5

1.7 B 2 c

2.2 A